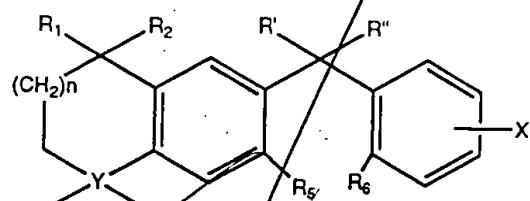


request amendment of the application as follows. Applicants also request consideration of the following Remarks.

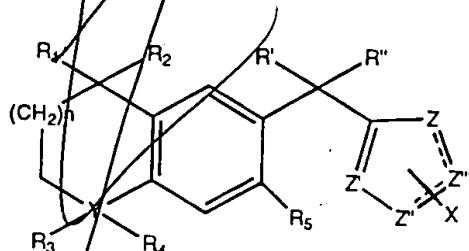
IN THE CLAIMS

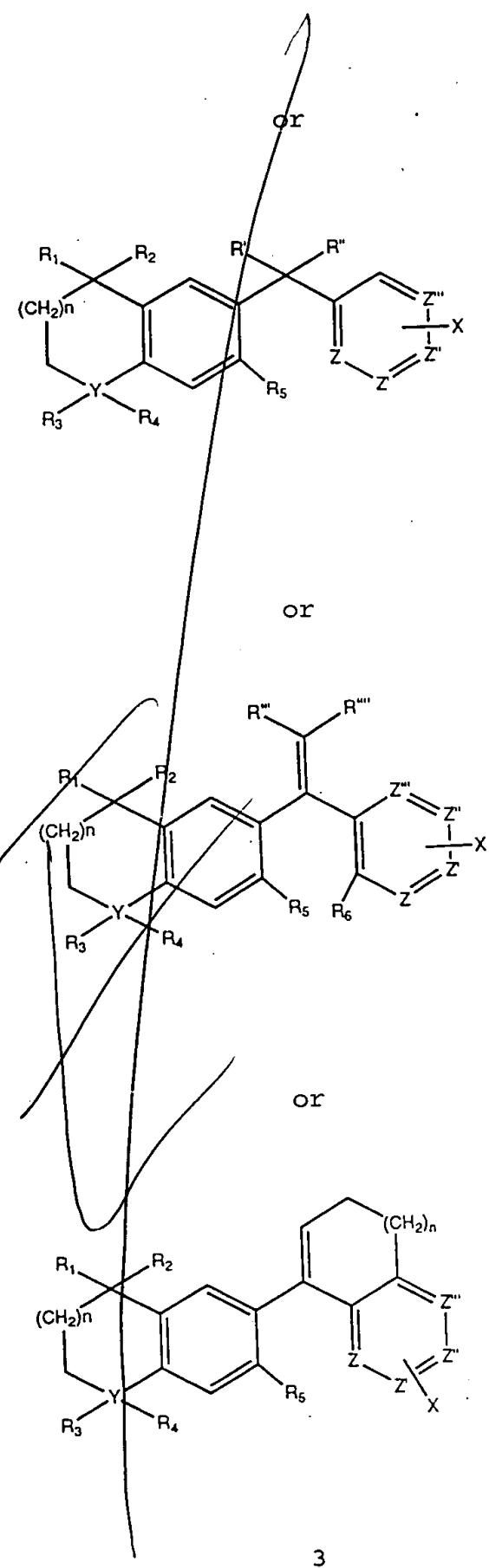
Please amend claims 4, 15, 19, 27, 29, 30, 31, 32 as follows:

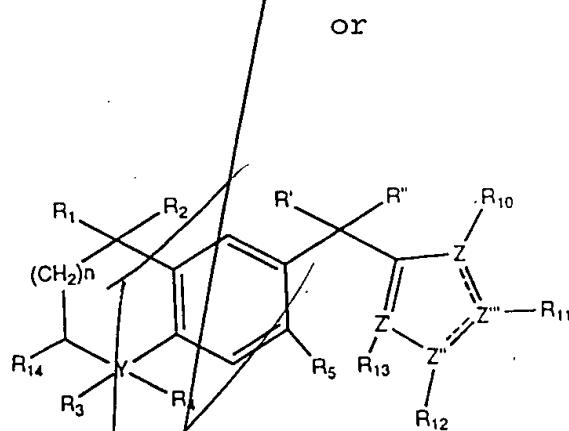
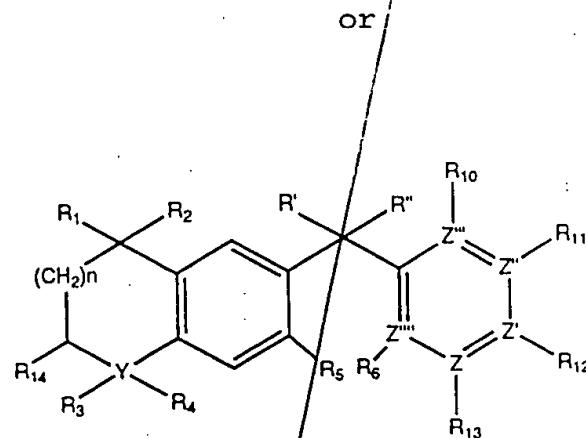
4. (Four Times Amended) A compound having the formula:



or







wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHO, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHO, CO, SO, or SO₂;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thioether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R''' and R'''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R''' and R'''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)_nCF₃, but R₅ cannot be hydrogen if R' and R" represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R" taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or (CF)_nCF₃, and exist only if the Z, Z', Z'', Z''', or Z'''' from which it originates is C, [or-each-independently-represent-hydrogen-or-a-lower-alkyl-having-1-4-carbons-if-the-Z,-Z',-Z'',-Z''',,-or-Z''''-from]

which it originates is N.] and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR, and SR, substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, aryl, OR, and SR, substituted alkenes);

X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₉, COSR₉, CONHR₉, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₉, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

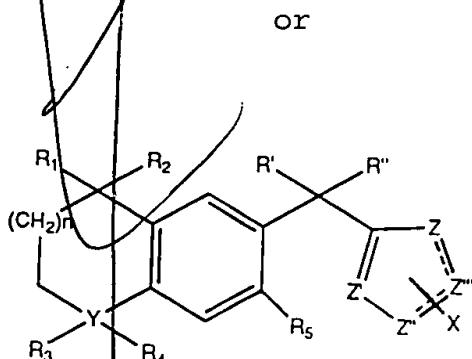
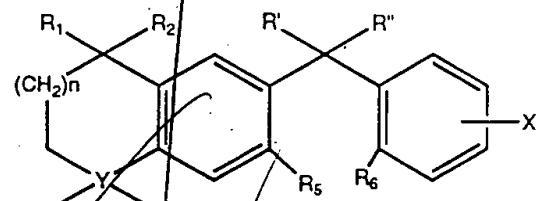
Z, Z', Z'', Z''' and Z'''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a

D
Concluded
single bond to another such Z which is N, and is not O or S in any
of the six-membered rings containing them;

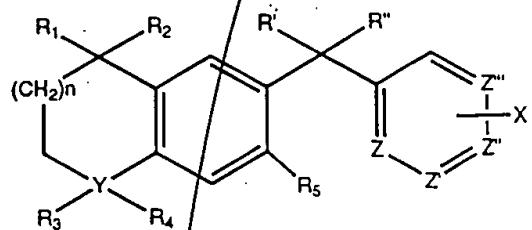
n = 0-3; and

the dashed lines in the second and seventh structures shown
depict optional double bonds.

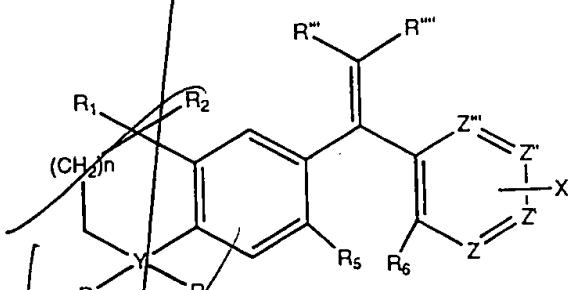
D
215. (Thrice Amended) A pharmaceutical composition
comprising in a pharmaceutically acceptable vehicle suitable for
enteral, parenteral, or topical administration, one or more
compounds having the formula:



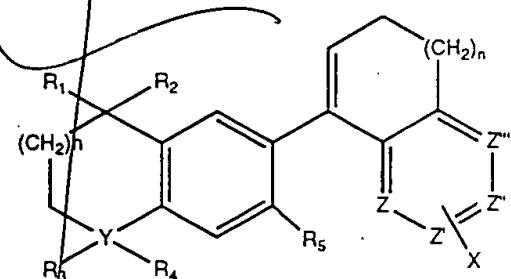
or



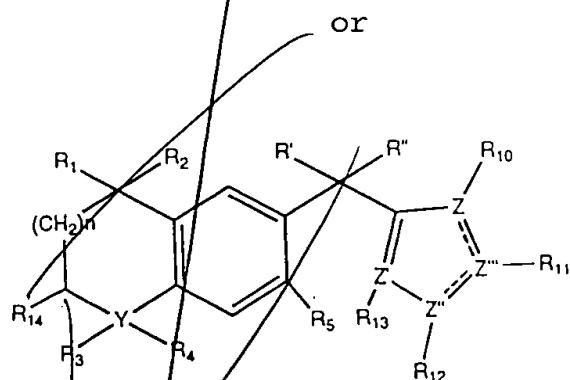
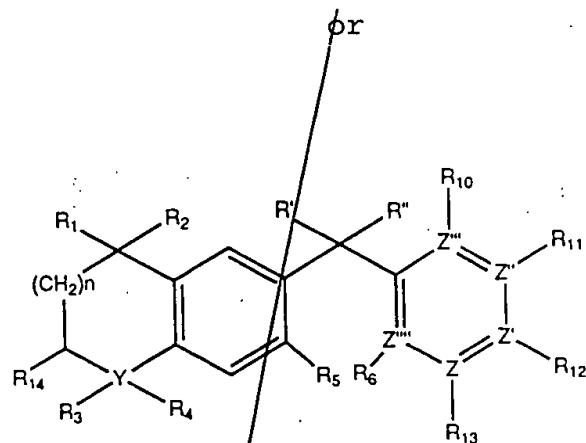
or



or



J 2
can add



wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R_4 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R_4 does not exist if Y is N, and neither R_3 or R_4 exist if Y is S, O, CHO, CO, SO, or SO_2 ;

R' and R'' represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thioether, or amino,

or R' or R'' taken together form an oxo (keto), methano, thioketo, $HO-N=$, $NC-N=$, $(R_7R_8)N-N=$, $R_{17}O-N=$, $R_{17}N=$, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R''' and R'''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R''' and R'''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R_5 represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7 , SR_7 , NR_7R_8 or $(CF)_nCF_3$, but R_5 cannot be hydrogen if R' and R'' represent H, OH, C_1-C_4 alkoxy or C_1-C_4 acyloxy or R' and R'' taken together form an oxo, methano, or hydroxyimino group;

R_6 , R_{10} , R_{11} , R_{12} , R_{13} each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7 , SR_7 , NR_7R_8 or $(CF)_nCF_3$, and exist only if the Z , Z' , Z'' , Z''' , or Z'''' from which it originates is C, [or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z , Z' , Z'' , Z''' , or Z'''' from

which it originates is N,] and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR, and SR, substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, aryl, OR, and SR, substituted alkenes);

X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₉, COSR₉, CONHR₉, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₉, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

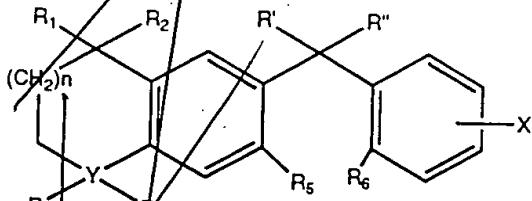
Z, Z', Z'', Z''' and Z'''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a

*D
Concluded*
single bond to another such Z which is N, and is not O or S in any
of the six-membered rings containing them;

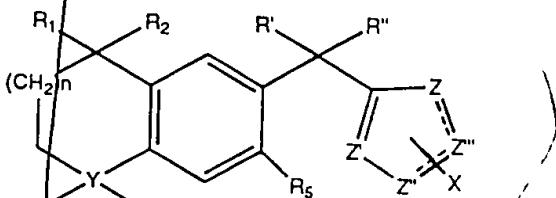
n = 0-3; and

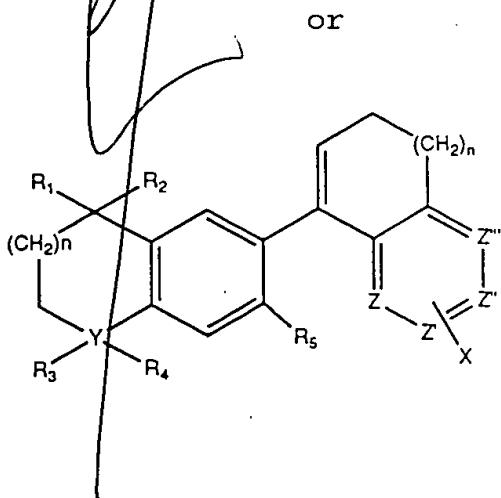
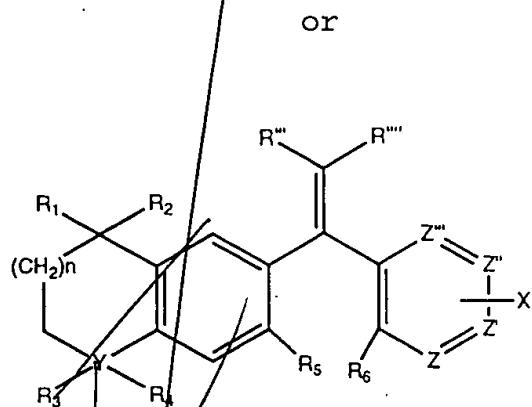
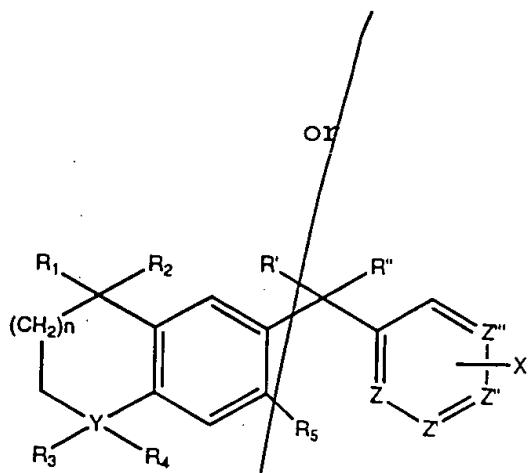
the dashed lines in the second and seventh structures shown
depict optional double bonds.

B
16 19. (Thrice Amended) A method for modulating a process
mediated by one or more Retinoid X Receptors, said method
comprising causing said process to be conducted in the presence of
at least one compound having the formula:

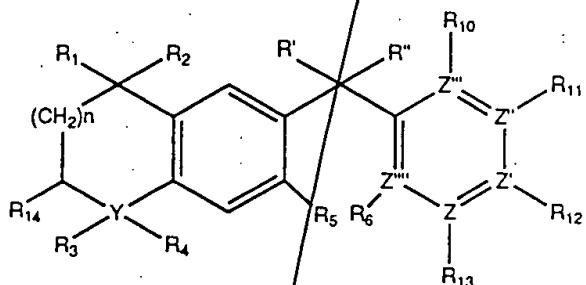


or

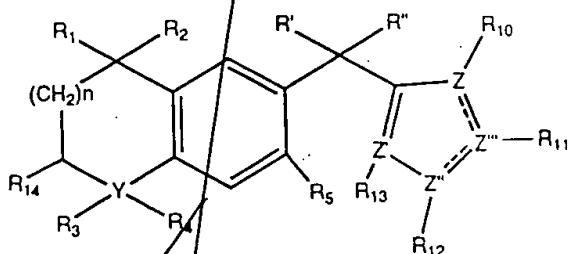




or



or



wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHO, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHO, CO, SO, or SO₂;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thioether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, R₁₇N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R''' and R'''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R''' and R'''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)_nCF₃, but R₅ cannot be hydrogen if R' and R" represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R" taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or (CF)_nCF₃, and exist only if the Z, Z', Z'', Z''', or Z'''' from which it originates is C, [or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z'', Z''', or Z'''' from

which it originates is N,] and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR, and SR, substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, aryl, OR, and SR, substituted alkenes);

X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₉, COSR₉, CONHR₉, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₉, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z'', Z''' and Z''", each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a

D³
Concluded

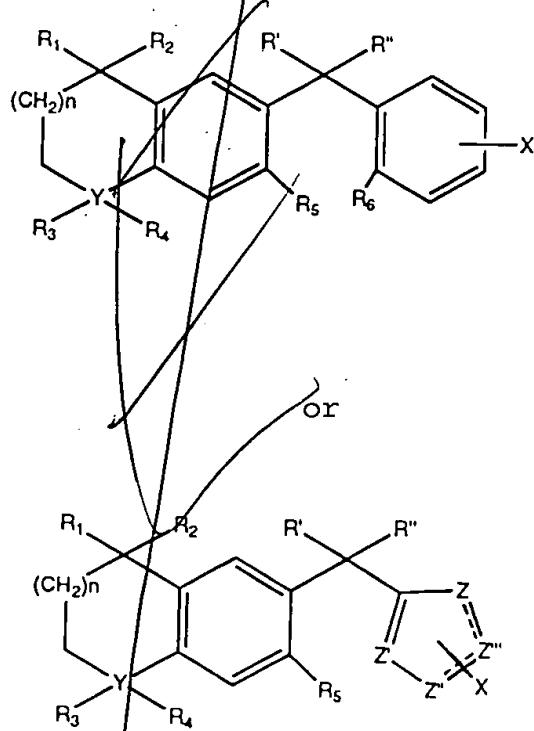
single bond to another such Z which is N, and is not O or S in any of the six-membered rings containing them;

n = 0-3; and

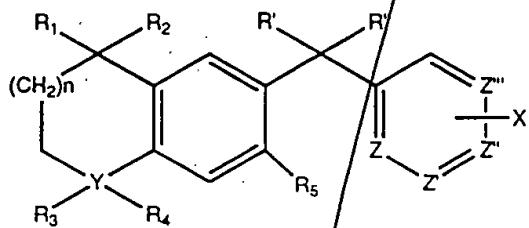
the dashed lines in the second and seventh structures shown depict optional double bonds.

S⁴
D

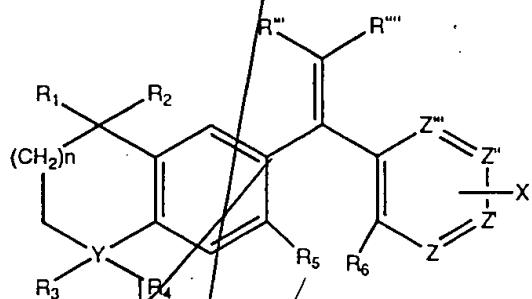
29 27. (Thrice Amended) A method for modulating a process mediated by one or more Retinoid X Receptors, said method comprising administering to a mammalian subject an amount, effective to modulate said process mediated by said one or more Retinoid X Receptors, of one or more compounds having the formula:



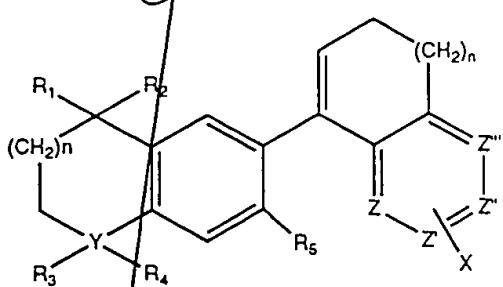
or



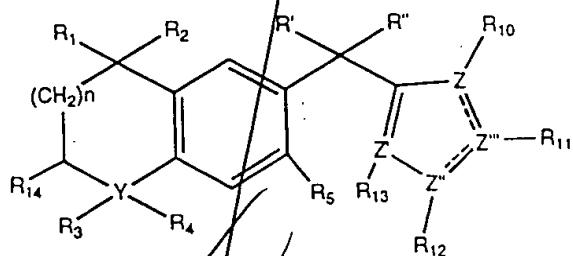
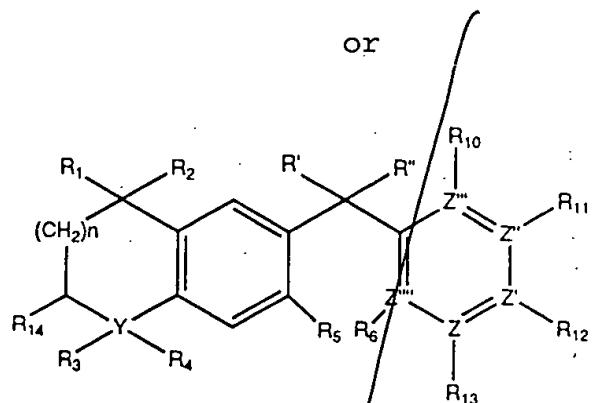
or



or



4
contd.



wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHO, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHO, CO, SO, or SO₂;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thioether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R''' and R'''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R''' and R'''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)_nCF₃, but R₅ cannot be hydrogen if R' and R" represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R" taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or (CF)_nCF₃, and exist only if the Z, Z', Z'', Z''', or Z'''' from which it originates is C, [or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z'', Z''', or Z'''' from

which it originates is N,] and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR, and SR, substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, aryl, OR, and SR, substituted alkenes);

X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₉, COSR₉, CONHR₉, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₉, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z'', Z''' and Z''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a

D⁴
Concluded

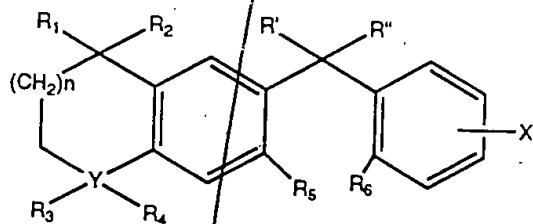
single bond to another such Z which is N, and is not O or S in any of the six-membered rings containing them;

n = 0-3; and

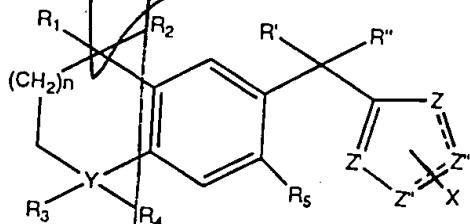
the dashed lines in the second and seventh structures shown depict optional double bonds.

D⁵

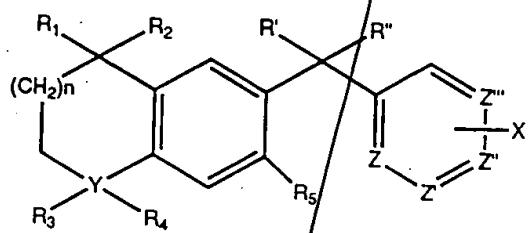
2629. (Thrice Amended) A method for treating a mammalian subject requiring Retinoid X Receptor therapy comprising administering to such subject a pharmaceutically effective amount of one or more compounds having the formula:



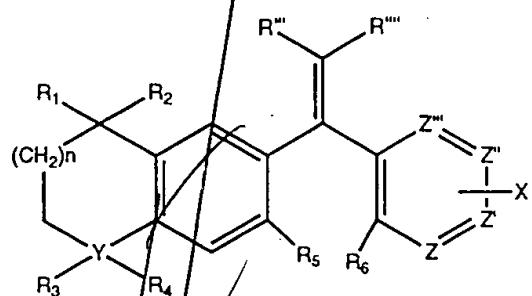
or



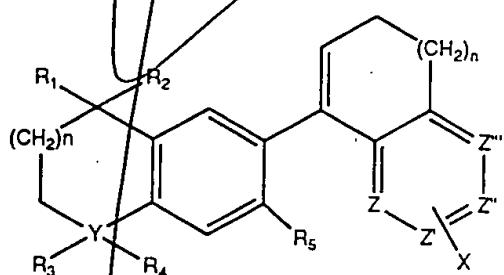
or



or

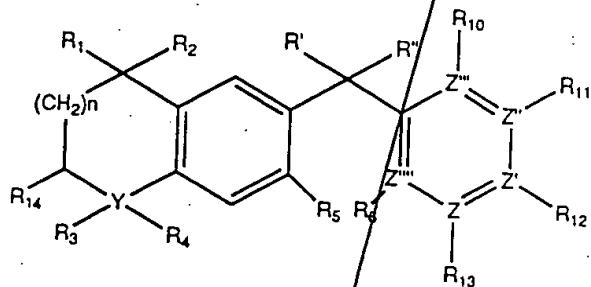


or

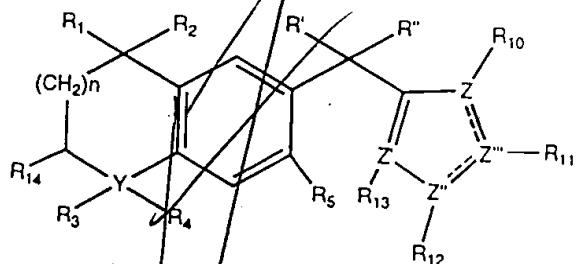


S
J
Contd.

or



or



wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHO, CO, SO, or SO₂;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thioether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R''' and R'''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R''' and R'''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)_nCF₃, but R₅ cannot be hydrogen if R' and R" represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R" taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or (CF)_nCF₃, and exist only if the Z, Z', Z'', Z''', or Z'''' from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z'', Z''', or Z'''' from

which it originates is N,] and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR, and SR, substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, aryl, OR, and SR, substituted alkenes);

X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₉, COSR₉, CONHR₉, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₉, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

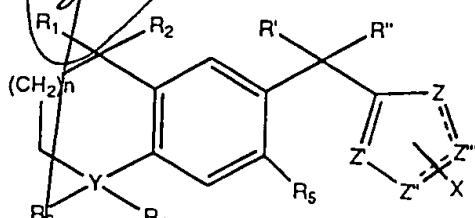
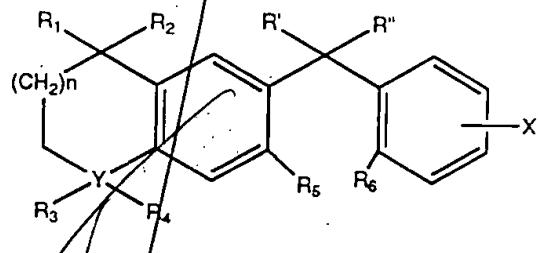
Z, Z', Z'', Z''' and Z''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a

single bond to another such Z which is N, and is not O or S in any of the six-membered rings containing them;

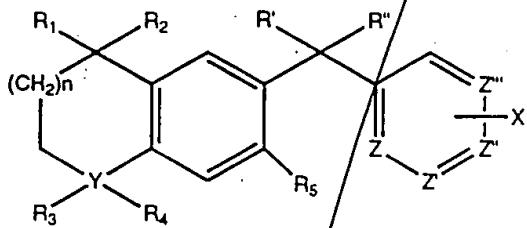
n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

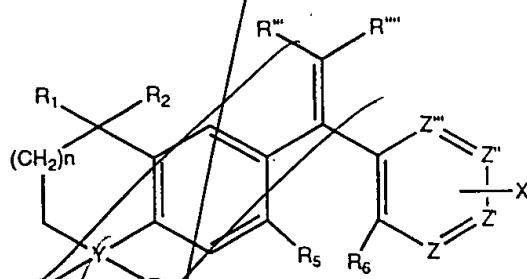
27 30. (Thrice Amended) A method for increasing plasma concentrations of high density lipoprotein in a mammalian subject comprising administering to such subject a pharmaceutically effective amount of one or more compounds having the formula:



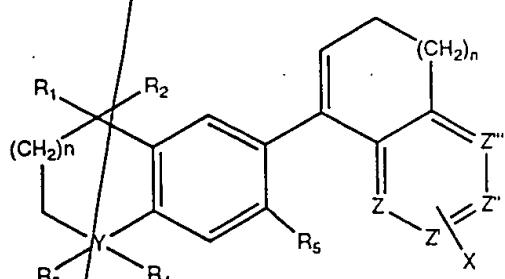
or



or

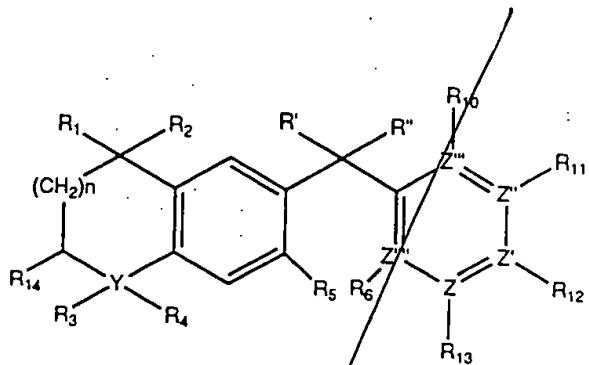


or

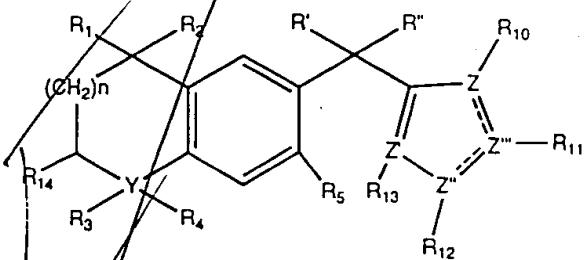


(S)
D,
Conj.

or



or



wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHO, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHO, CO, SO, or SO₂;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thioether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, R₁₇N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R''' and R'''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R''' and R'''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)_nCF₃, but R₅ cannot be hydrogen if R' and R" represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R" taken together form an oxo, methano, or hydroxylimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or (CF)_nCF₃, and exist only if the Z, Z', Z'', Z''', or Z'''' from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z'', Z''', or Z'''' from

which it originates is N,] and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR, and SR, substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, aryl, OR, and SR, substituted alkenes);

X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₉, COSR₉, CONHR₉, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₉, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

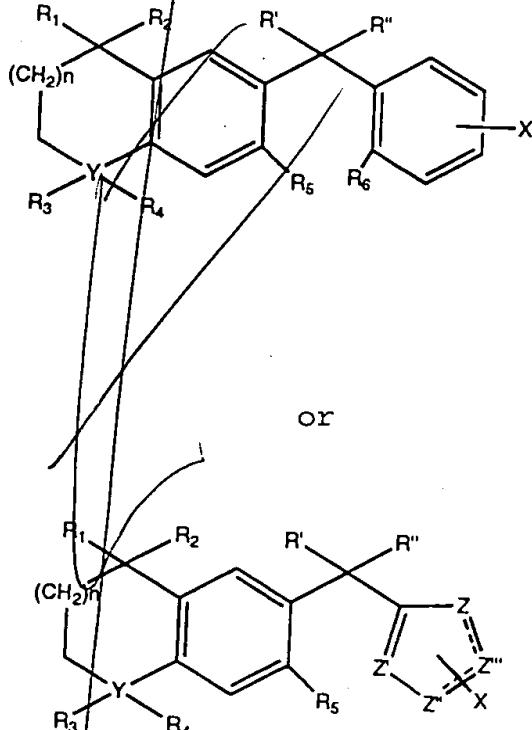
Z, Z', Z'', Z''' and Z''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a

single bond to another such Z which is N, and is not O or S in any of the six-membered rings containing them;

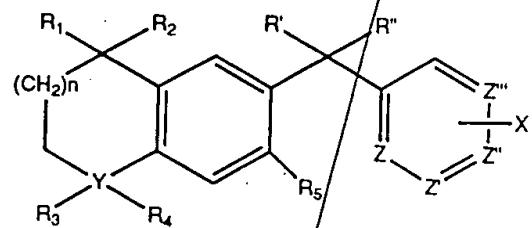
n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

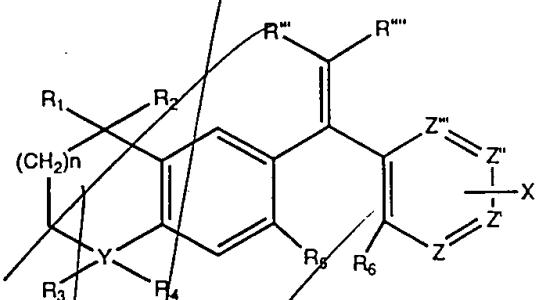
631. (Thrice Amended) A method for determining the presence of one or more Retinoid X Receptors comprising combining a compound as set forth below with a sample containing one or more unknown receptors and determining whether said compound binds to any receptor in said sample, said compound having the formula:



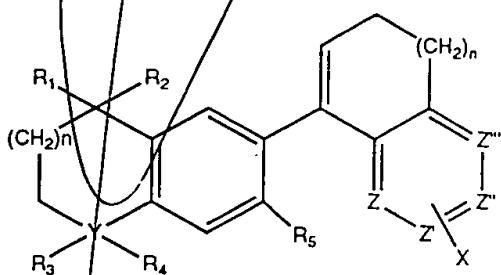
or



or

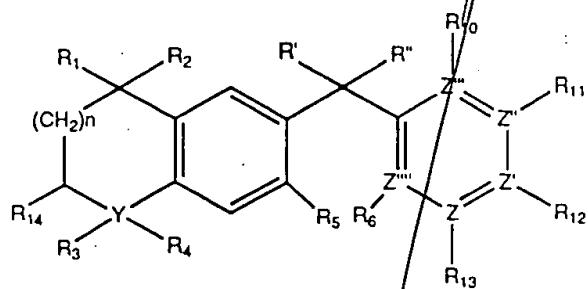


or

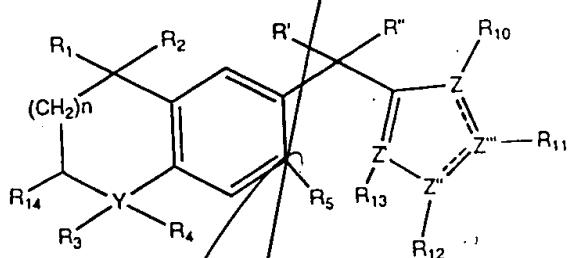


Coated

or



OR



wherein

R_1 and R_2 , each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHO, CO, SO, SO_2 , or a pharmaceutically acceptable salt;

R_3 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHO, CO, SO, or SO₂;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thioether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, R₁₇N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

*D 5
CONT'D.*

R'" and R"" represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R'" and R"" taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)_nCF₃, but R₅ cannot be hydrogen if R' and R" represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R" taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or (CF)_nCF₃, and exist only if the Z, Z', Z", Z'', or Z''' from which it originates is C, [or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z", Z'', or Z''' from

which it originates is N,] and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

D
5
C/M
R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR, and SR, substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, aryl, OR, and SR, substituted alkenes);

X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₉, COSR₉, CONHR₉, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₉, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z'', Z''' and Z'''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a

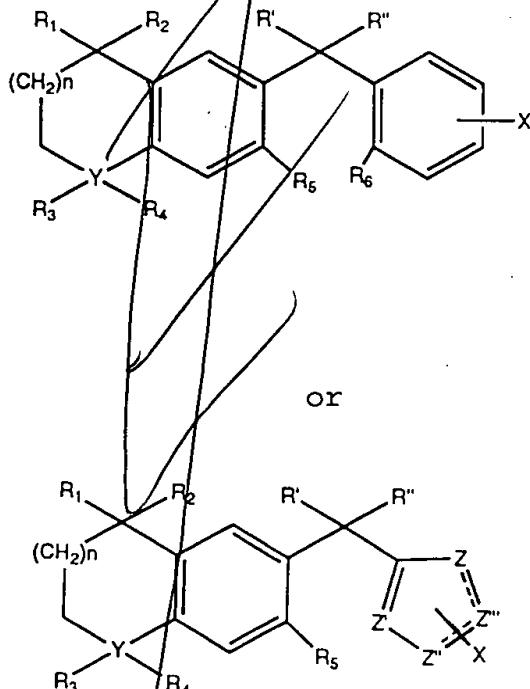
single bond to another such Z which is N, and is not O or S in any of the six-membered rings containing them;

n = 0-3; and

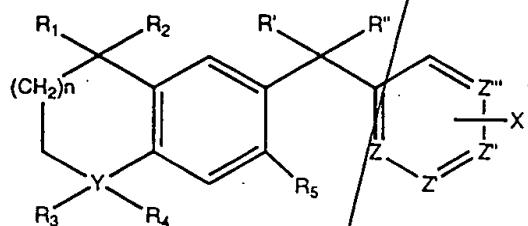
the dashed lines in the second and seventh structures shown depict optional double bonds.

D5 CM

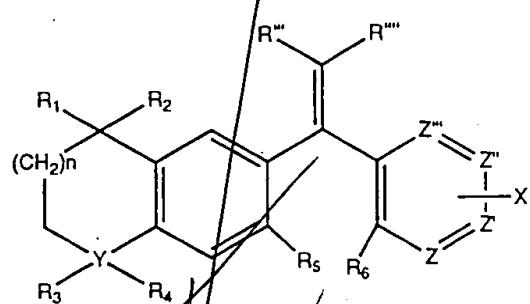
29,32. (Thrice Amended) A method of purifying Retinoid X Receptors comprising combining a compound as set forth below with a sample containing one or more said Retinoid X Receptors, allowing said compound to bind with Retinoid X Receptors, and separating out the bound combination of said compound and Retinoid X Receptor, said compound having the formula:



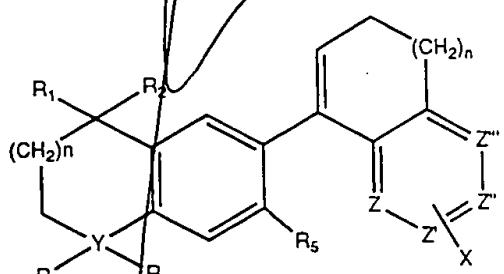
or



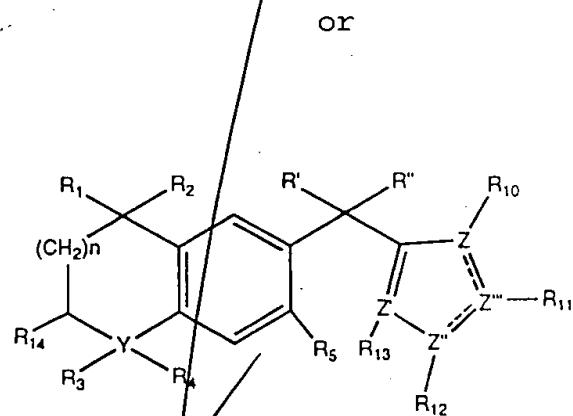
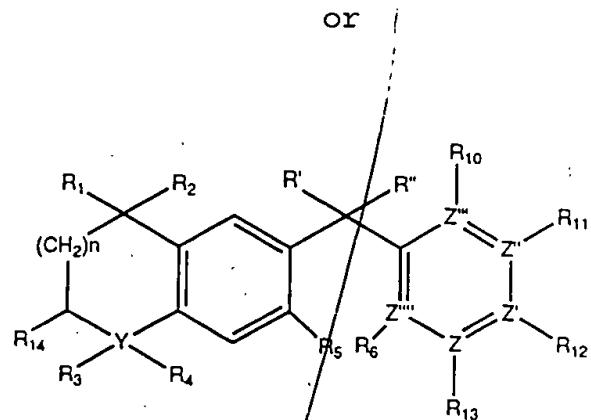
or



or



5
Contd.



wherein

R_1 and R_2 , each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHO, CO, SO, SO_2 , or a pharmaceutically acceptable salt;

R_3 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHO, CO, SO, or SO₂;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thioether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, R₁₇N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R''' and R'''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R''' and R'''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)_nCF₃, but R₅ cannot be hydrogen if R' and R" represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R" taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or (CF)_nCF₃, and exist only if the Z, Z', Z'', Z''', or Z'''' from which it originates is C, [or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z'', Z''', or Z'''' from

which it originates is N,) and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR, and SR, substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, aryl, OR, and SR, substituted alkenes);

X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₉, COSR₉, CONHR₉, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₉, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z'', Z''' and Z'''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a

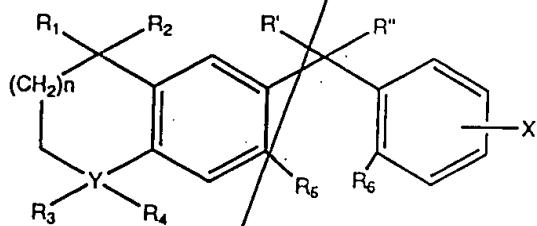
D
Concluded
single bond to another such Z which is N, and is not O or S in any
of the six-membered rings containing them;

n = 0-3; and

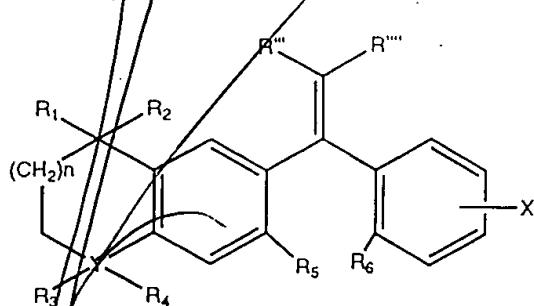
the dashed lines in the second and seventh structures shown
depict optional double bonds.

In addition, please add the following new claims:

30-82. A compound having the formula:



or



wherein

R_1 and R_2 , each independently, represent hydrogen or lower alkyl having 1-4 carbon atoms;

Y represents C, O, S, or N;

R_3 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R_4 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R_4 does not exist if Y is N, and neither R_3 or R_4 exist if Y is S or O;

R' and R'' represent hydrogen or lower alkyl having 1-4 carbon atoms,

or R' or R'' taken together form an oxo (keto), methano, cyclopropyl or cycloalkyl group and wherein the cyclopropyl and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons;

R''' and R'''' represent hydrogen or lower alkyl having 1-4 carbon atoms,

R_5 represents hydrogen or a lower alkyl having 1-4 carbons or OR_7 , but R_5 cannot be hydrogen if R_6 is hydrogen and R' and R'' taken together form an oxo or a methano;

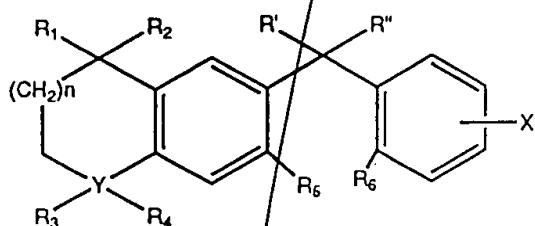
R_6 represents hydrogen;

R_7 represents hydrogen or a lower alkyl having 1-6 carbons;

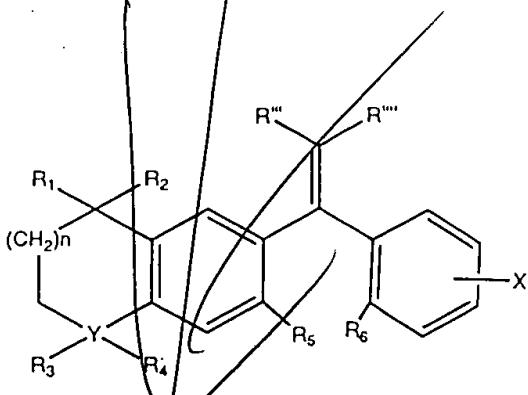
X is COOH and can originate from any C on the ring; and

$n = 0-1.$

31 63. A pharmaceutical composition for control of cellular processes regulated by retinoid compounds, Vitamin D, or thyroid hormone, comprising an effective regulating amount of a bicyclic aromatic compound, or a pharmaceutically acceptable ester, amide or salt thereof, in combination with a pharmaceutically acceptable carrier, wherein the bicyclic aromatic compound has the structural formula:



or



wherein:

R₁ and R₂, each independently, represent hydrogen or lower alkyl having 1-4 carbon atoms;

Y represents C, O, S, or N;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms

where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms
where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄
exist if Y is S or O;

R' and R" represent hydrogen or lower alkyl having 1-4 carbon
atoms,

Six concluded
or R' or R" taken together form an oxo (keto), methano,
cyclopropyl or cycloalkyl group and wherein the cyclopropyl and
cycloalkyl groups can be substituted with lower alkyl having 1-4
carbons;

R''' and R'''' represent hydrogen or lower alkyl having 1-4
carbon atoms,

R₅ represents hydrogen or a lower alkyl having 1-4 carbons or
OR₇, but R₅ cannot be hydrogen if R₆ is hydrogen and R' and R"
taken together form an oxo or a methano;

R₆ represents hydrogen;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

X is COOH and can originate from any C on the ring; and

n = 0-1.